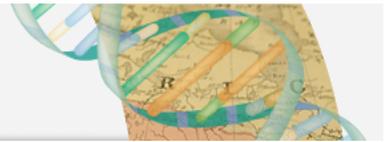


# GROWING A NATION

THE STORY OF AMERICAN AGRICULTURE



- [Home](#)
- [Multimedia](#)
- [Lessons & Narratives](#)
- [Historical Timeline](#)
- [Primary Sources](#)
- [History Standards](#)

## Historical Timeline — Farm Machinery & Technology

### ⇒ 17th-18th Centuries

#### 18th century

Oxen and horses for power, crude wooden plows, all sowing by hand, cultivating by hoe, hay and grain cutting with sickle, and threshing with flail

#### 1790s

Cradle and scythe introduced; invention of cotton gin (1793); Thomas Jefferson's plow with moldboard of least resistance tested (1794)

#### 1793

Eli Whitney invents the cotton gin, which contributes to the success of cotton as a Southern cash crop

#### 1797

Charles Newbold patents first cast-iron plow



### ⇒ 1800

#### 1801

Thomas Moore of Maryland invents the icebox refrigerator

#### 1819

Jethro Wood patents iron plow with interchangeable parts

#### 1819-25

U.S. food canning industry established



### ⇒ 1820

#### 1830

About 250-300 labor-hours required to produce 100 bushels (5 acres) of wheat with walking plow, brush harrow, hand broadcast of seed, sickle, and flail

#### 1834

McCormick reaper patented; John Lane manufactures plows faced with steel saw blades

#### 1837

John Deere and Leonard Andrus begin manufacturing steel plows; practical threshing machine patented

### ⇒ 1840

#### 1840s

Factory-made agricultural machinery increases farmers' need for cash and encourages commercial farming

#### 1841

Practical grain drill patented

#### 1842

First grain elevator, Buffalo, NY

#### 1843

Sir John Lawes founded the commercial fertilizer industry by developing a process for making superphosphate

#### 1844

Practical mowing machine patented

#### 1847

Irrigation begun in Utah

#### 1849

Mixed chemical fertilizers sold commercially

**1850**

About 75-90 labor-hours required to produce 100 bushels (2 ½ acres) of corn with walking plow, harrow, and hand planting

**1850-70**

Expanded market for agricultural products spurs adoption of improved technology resulting increases in farm production

**1854**

Self-governing windmill perfected

**1856**

Two-horse straddle-row cultivator patented

**1858**

Mason jars, used for home canning, were invented

⇒ **1860****1862-75**

Change from hand power to horses characterizes the first American agricultural revolution

**1865-75**

Gang plows and sulky plows come into use

**1868**

Steam tractors are tried out

**1869**

Spring-tooth harrow for seedbed preparation appears

**1870s**

Silos and deep-well drilling come into use

**1874**

Glidden barbed wire patented; fencing of rangeland ends era of unrestricted, open-range grazing

⇒ **1880****1880**

William Deering puts 3,000 twine binders on the market

**1881**

Hybridized corn produced

**1884-90**

Horse-drawn combine used in Pacific coast wheat areas

**1888**

The first long haul shipment of a refrigerated freight car was made from California to New York

**1890-95**

Cream separators come into wide use

**1890-99**

Average annual consumption of commercial fertilizer; 1,845,900 tons

**1890s**

Agriculture becomes increasingly mechanized and commercialized

**1890**

40-50 labor-hours required to produce 100 bushels (5 acres) of wheat with gang plow, seeder, harrow, binder, thresher, wagons, and horses; 35-40 labor-hours required to produce 100 bushels (2 1/2 acres) of corn with 2-bottom gang plow, disk and peg-tooth harrow, and 2-row planter

**1892**

The first gasoline tractor was built by John Froelich

⇒ **1900****1900-09**

Average annual consumption of commercial fertilizer 3,738,300 tons

**1900-10**

George Washington Carver of Tuskegee Institute finds new uses for peanuts, sweet potatoes, and soybeans, helping to diversify southern agriculture

**1905**

The first business devoted exclusively to making tractors is established



## ⇒ 1910

### 1910-19

Commercial fertilizer use: 6,116,700 tons/year

### 1910-15

Big open-g geared gas tractors introduced in areas of extensive farming

### 1915-20

Enclosed gears developed for tractor

### 1918

Small prairie-type combine with auxiliary engine introduced

## ⇒ 1920

### 1920-29

Commercial fertilizer use: 6,845,800 tons/year

### 1920-40

Farm production gradually grows from expanded use of mechanized power

### 1926

Cotton-stripper developed for High Plains; successful light tractors developed

### 1928

Otto Rohwedder introduced his bread-slicing machine

## ⇒ 1930

### 1930-39

Commercial fertilizer use: 6,599,913 tons/year

### 1930s

All-purpose, rubber-tired tractor with complementary machinery popularized

### 1930

One farmer supplies, on average, 9.8 in the United States and abroad; 15-20 labor-hours required to produce 100 bushels (2 1/2 acres) of corn with 2-bottom gang plow, 7-foot tandem disk, 4-section harrow, 2-row planters, cultivators, and pickers; 15-20 labor-hours required to produce 100 bushels (5 acres) of wheat with 3-bottom gang plow, tractor, 10-foot tandem disk, harrow, 12-foot combine, and trucks

## ⇒ 1940

### 1940-49

Commercial fertilizer use: 13,590,466 tons/year

### 1940

One farmer supplies 10.7 persons (est.)

### 1941-45

Frozen foods popularized

### 1942

Spindle cottonpicker produced commercially

### 1945-70

Change from horses to tractors and increasing technological practices characterize the second American agricultural revolution; productivity per acre begins sharp rise

### 1945

10-14 labor-hours required to produce 100 bushels (2 acres) of corn with tractor, 3-bottom plow, 10-foot tandem disk, 4-section harrow, 4-row planters and cultivators, and 2-row picker; 42 labor-hours required to produce 100 pounds (2/5 acre) of lint cotton with 2 mules, 1-row plow, 1-row cultivator, hand hoe, and hand pick

## ⇒ 1950

### 1950-59

Commercial fertilizer use: 22,340,666 tons/year

### 1950

One farmer supplies 15.5 persons (est.)

### 1951

Organic chemicals called chelates are found to help protect plants against certain metal deficiencies

**1954**

Number of tractors on farms exceeds the number horses and mules for the first time

**1955**

6 1/2 labor-hours required to produce 100 bushels (4 acres) of wheat with tractor, 10- foot plow, 12-foot row weeder, harrow, 14-foot drill, self-propelled combine and trucks.

**Late 1950s**

Anhydrous ammonia increasingly used as cheap source of nitrogen, boosting yields

**1959**

Mechanical tomato harvester developed

➔ **1960****1960-69**

Commercial fertilizer use: 32,373,713 tons/year

**1960**

One farmer supplies 25.8 persons (est.)

**1965**

5 labor-hours required to produce 100 pounds (1/5 acre) of lint cotton with tractor, 2-row stalk cutter, 14-foot disk, 4-row bedder, planter, cultivator, and 2-row harvester

5 labor-hours required to produce 100 bushels (3 acres) of wheat with tractor, 12- foot plow, 14-foot drill, 14-foot self-propelled combine, and trucks; 99% of sugar beets harvested mechanically; Federal loans and grants for water/sewer systems

**1968**

96% of cotton harvested mechanically

➔ **1970****1970-79**

Commercial fertilizer use: 43,643,700 tons/year

**1970s**

No-tillage agriculture popularized

**1970**

One farmer supplies 47.7 persons (est.)

**1975**

2-3 labor-hours required to produce 100 pounds (1/5 acre) of lint cotton with tractor, 2-row stalk cutter, 20-foot disk, 4-row bedder and planter, 4-row cultivator with herbicide applicator, and 2-row harvester

3-3/4 labor-hours required to produce 100 bushels (3 acres) of wheat with tractor, 30-foot sweep disk, 27-foot drill, 22-foot self-propelled combine, and trucks; 3-1/3 labor-hours required to produce 100 bushels (1 1/8 acres) of corn with tractor, 5-bottom plow, 20-foot tandem disk, planter, 20-foot herbicide applicator, 12-foot self-propelled combine, and trucks

➔ **1980****1980-89**

Commercial fertilizer use: 47,411,166 tons/year

**1980s**

More farmers use no-till or low-till methods to curb erosion

**1980**

One farmer supplies 75.7 persons (est.)

**1987**

1-1/2 to 2 labor-hours required to produce 100 pounds (1/5 acre) of lint cotton with tractor, 4-row stalk cutter, 20-foot disk, 6-row bedder and planter, 6-row cultivator with herbicide applicator, and 4-row harvester

3 labor-hours required to produce 100 bushels (3 acres) of wheat with tractor, 35-foot sweep disk, 30-foot drill, 25-foot self-propelled combine, and trucks; 2-3/4 labor-hours required to produce 100 bushels (1 1/8 acres) of corn with tractor, 5-bottom plow, 20-foot tandem disk, planter, 20-foot herbicide applicator, 12-foot self-propelled combine, and trucks

**1989**

After several slow years, the sale of farm equipment rebounds; more farmers begin to use low-input sustainable agriculture (LISA) techniques to reduce chemical applications

➔ **1990-2000****1990**

One farmer supplies 100 persons (est.)

**1990s**

Information technology and precision techniques increasingly used in agriculture

**1994**

Farmers begin using satellite technology to track and plan their farming practices. The user of conservation tillage methods, which leave crop residues in the field to combat erosion, continues to rise. FDA grants first approval for a whole food produced through biotechnology, the FLAVRS AVR™ tomato. Farm Bureau celebrates its 75th anniversary. U.S. Congress approves General Agreement on Tariffs and Trade (GATT), helping liberalize world trade

**1997**

The first weed and insect—resistant biotech crops—soybeans and cotton—are available commercially

[Back to Top](#)



➔ by Decade

- [17th-18th Centuries](#)
- [1800](#)
- [1820](#)
- [1840](#)
- [1860](#)
- [1880](#)
- [1900](#)
- [1910](#)
- [1920](#)
- [1930](#)
- [1940](#)
- [1950](#)
- [1960](#)
- [1970](#)
- [1980](#)
- [1990-2000](#)

➔ by Category

- [Economic Cycles](#)
- [Farm Economy](#)
- [Farmers & the Land](#)
- [Farm Machinery & Technology](#)
- [Crops & Livestock](#)
- [Transportation](#)
- [Ag Trade & Development](#)
- [Life on the Farm](#)
- [Farm Organizations](#)
- [Ag Education & Extension](#)
- [Government Programs & Policy](#)

The content on this website (2014) is based upon work supported by the National Institute of Food and Agriculture (NIFA), United States Department of Agriculture (USDA), under Agreement No. 2004-38840-01819. Any opinions, findings, conclusions, or recommendations expressed on this website, are those of the [authors](#) and do not necessarily reflect the view of the USDA.